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Author(s): Johnson, Paul Allan  
Rougier, Esteban  
Gao, Ke

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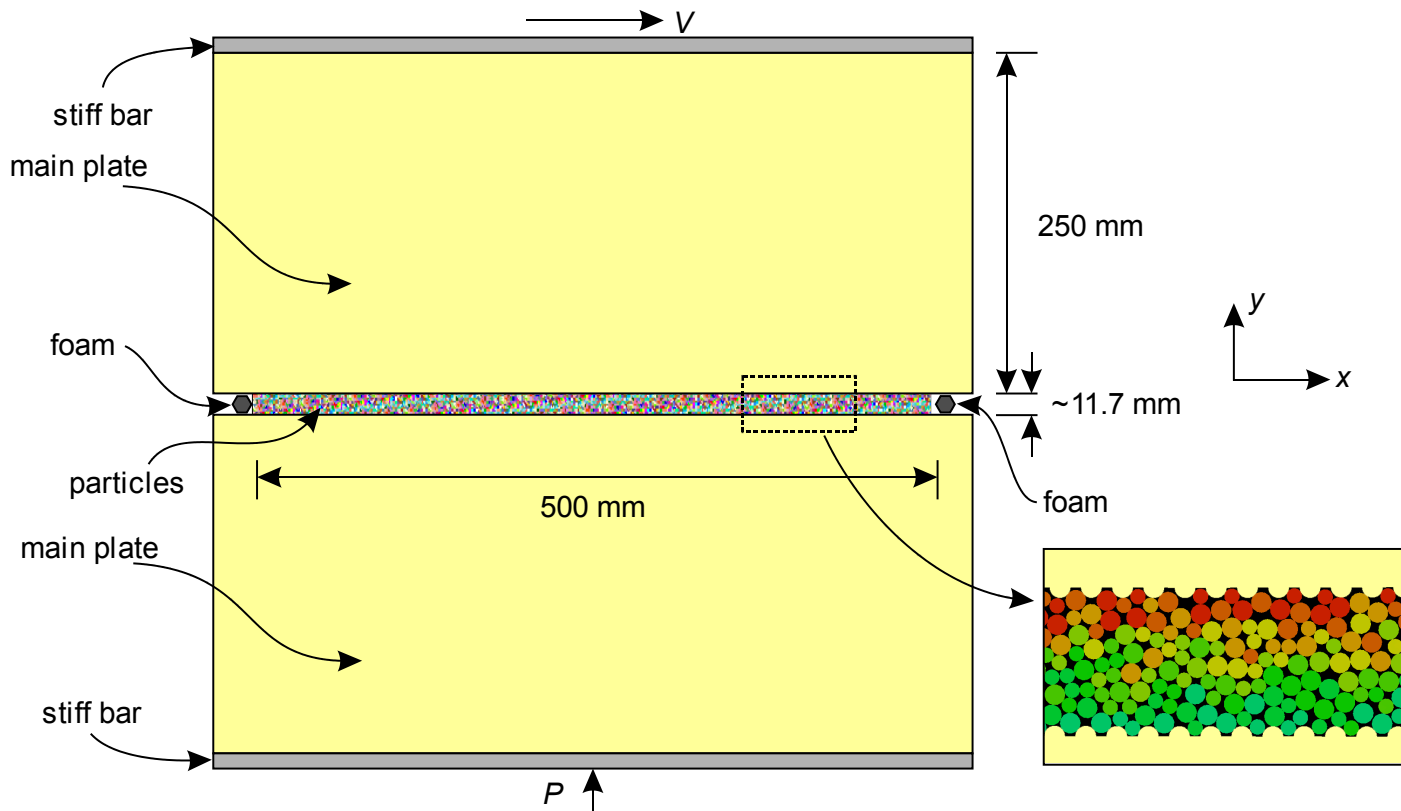
# **Project: w17\_faultprediction - “Critical Stress in Earth”**

**P. Johnson, E. Rougier, K. Gao**

**Institutional Computing  
Year-End Report**

# Project: w17\_faultprediction - “Critical Stress in Earth”

## Simulation granular earthquake fault gouge using HOSS

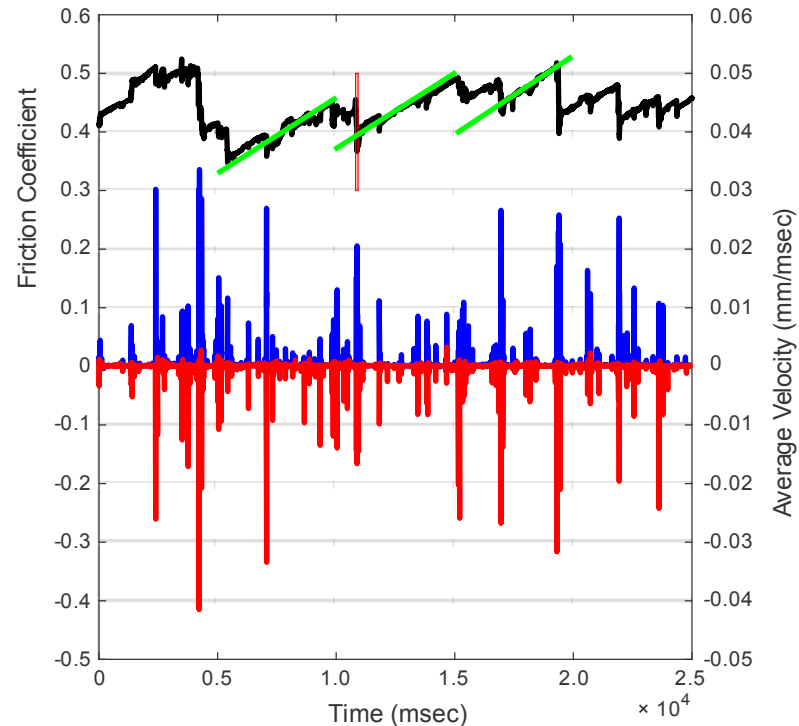


Experimental setup

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## Simulation granular earthquake fault gouge using HOSS

The three green lines, all with the same slope, illustrate the underlying spring-like character of the elasticity of the gouge.

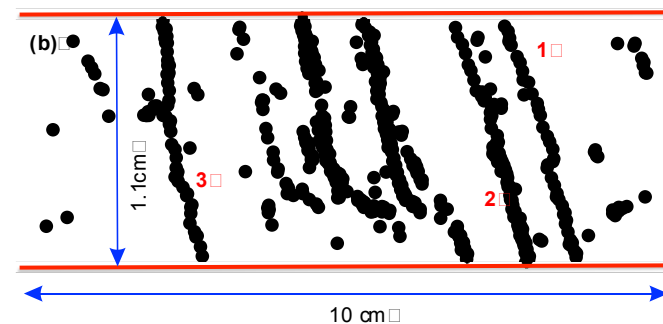
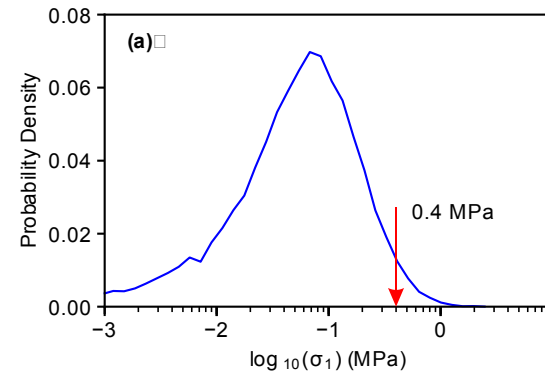


Simulation of average source ground vibration in  
sheared granular fault VS friction

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## Simulation granular earthquake fault gouge using HOSS

Through the simulation, we found that it is the collapse of stress chain that causes the vibrations on the plates adjacent to the gouge, which further propagate into the plates and form the acoustic signal.



Stress chain in sheared granular fault gouge for the model under normal load of 44 kPa